The Ohanapecosh Campground: A River Runs Through It
Mount Rainier National Park
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Sunrise GIP
Ohanapecosh River Program
September 2010

THE OHANAPECOSH CAMPGROUND: A RIVER RUNS THROUGH IT

Location: Ohanapecosh Campground Amphitheatre

Target audience: Campground guests of all ages at the evening program

Topic: Ohanapecosh River as a unique ecosystem

Program theme statement: The Ohanapecosh River is unique at Mount Rainier in a variety of ways, but nonetheless is an example of many of the special features throughout the park.

Supports a park theme statement: Physical Processes: "Water is one of the primary forces of change at Mount Rainier…. Hydrological disturbances are a perpetual force of change to Mount Rainier's ecosystems….Mount Rainier distinguishes itself from other Cascade volcanoes by its immense size and extensive glacial system."

Goal: Increase visitor appreciation of the Ohanapecosh River as a special river at Mount Rainier, and encourage them to visit other places in the park that are different from the Ohana area.

Objectives: At the end of the program, audience members will be able to:

1. Describe native use of the area
2. Explain why the Ohanapecosh is clearer than many other rivers in Mount Rainier National Park
3. Describe the stream ecosystem: amphibians, macroinvertebrates, plant communities, etc.
4. Discuss modern human use of the river, its importance to communities downstream, and potential flooding hazards.

Tangibles: water, rocks, fishing, kayaking, rain/snowfall

Intangibles: history/time, glacial carving, watersheds

Universals: life, beauty

Materials: outline, powerpoint file on laptop or thumbdrive, computer, etc. for presentation – see SOP's for Ohanapecosh

SCRIPT OF POWERPOINT PRESENTATION

Slide 1:

Welcome to Mount Rainier National Park and welcome here to Ohanapecosh! I'm _____ and I'm a ranger/geologist-in-park/student conservation volunteer/etc here at the park this summer. Before we get started, I'd like to remind everyone of some safety issues. Please be sure that before leaving your campsite unattended, the fire is completely out and cold to the touch. Also, be sure to put away anything with an odor – food, cook stoves, toiletries, and so forth. This will help discourage any furry or feathered surprise visitors to your campsite!

This campground is named after the Ohanapecosh River. Who has had time to go for a walk to see the river? Tonight we will explore the Ohanapecosh and its special place in the park.

Slide 2:

Tonight's program will introduce you to four aspects of the Ohanapecosh River. First, I'll discuss native use of the Ohanapecosh watershed. Then I will touch on the river system and river ecology. I'll finish by showing you how people are continuing to interact with the river today.

Slide 3:

The name "Ohanapecosh" is thought to be derived from the word "Awxanapayk-ash", which possibly means "standing on the edge". It may also mean "deep blue stream" or "look down on something beautiful."

Slide 4:

This is a map of the park showing different native groups associated with different areas of the park.

We are at the yellow star in the lower right hand corner and the Ohanapecosh River is shown here in blue.

Within the park, the Yakama people were using the land in the upper Ohanapecosh watershed. South of the park boundary, the Taidnapam (Upper Cowlitz) people used the area surrounding the Ohanapecosh River.

Slide 5:

Within the park, many artifacts have been found and documented by archaeologists. People have been coming to various areas of what is now Mount Rainier National Park for perhaps as many as 8,500 years.

Slide 6:

This map shows the distribution of known archaeological sites within the park as of 2008. Keep in mind that this map represents thousands of years and different groups of people using the area through all that time!

Many of the sites that have been found are at higher elevations in the park – in the pink and blue areas (subalpine and alpine zones). However, there have been sites discovered in the green areas at lower elevation in the forest, including a few nearby.

South of the park boundary, an archeological site dating to approximately 1630 was excavated in 1997 along the Ohanapecosh River.

Slide 7:

As a reminder – if you do find any artifact, it is a crime to disturb or take the item. Please report the item description and exact location to park staff. Artifacts provide more information to scientists when they are in place. Do your part to protect the park's history!

Slide 8:

At lower elevations covered by forest like the area surrounding us here, traditional use included the collection of many types of plants. Some of these plants you can find growing in and around the Ohanapecosh Campground, including various berries, ferns, and western red cedars.

Slide 9:

Native people still collect some plants in different parts of the park, according to agreements with park administration such as the Nisqually Plant Collecting Agreement.

In this picture (upper left), people are collecting sword fern. This fern is very abundant throughout the campground and surrounding areas.

Different areas of Mount Rainier were used for seasonal hunting, though hunting is no longer allowed within park boundaries.

Another food item historically harvested from the Ohanapecosh area came from the river itself: fish! People still fish the Ohanapecosh today.

Slide 10:

Most of the big rivers in the park are sourced by glaciers. Mount Rainier has the most expansive glacial system in the lower 48 states.

A commonly held assumption about the Ohanapecosh River is that its primary water source is the Ohanapecosh Glacier. This is partly true, but there is more to the story of this river!

Slide 11:

Many of the big rivers here at Mount Rainier are milky-colored. Has anyone been to the White River on the way to Sunrise? These rivers are milky because they are filled with glacial sediment. As glaciers flow slowly down the mountain, they pick up rocks. These rocks grind on each other, pulverizing the rocks into tiny pieces called glacial flour. The rivers fed by these grinding glaciers are full of this sediment.

Look at how cloudy the White River is – it is filled with glacial flour.

In this picture, you can see where the White River starts at the very bottom of the Emmons Glacier.

Slide 12:

The Ohanapecosh River is different, though…

Two streams come together to form the main Ohanapecosh River. The smaller stream runs through the Indian Bar backcountry campsite and drains the Ohanapecosh Glacier. The stream is called the Ohanapecosh.

The Ohanapecosh "Glacier" is not a very active glacier; you can think of it more as an ice field or permanent snowfield that is not moving. It is stagnant, so there is not much grinding of rock happening – so the stream running through Indian Bar is rather clear.

Slide 13:

This is the Ohanapecosh River at Indian Bar, notice how clear the water is. This water is clear enough that backpackers use it for drinking water. They treat it first with iodine or a filter, but this water source is much preferred to a river that is full of the glacial flour!

Slide 14:

The larger tributary is called the Boulder River. The Boulder River flows into the Ohanapecosh below Indian Bar.

This picture is of Ohanapecosh Park. This is just snow from the wintertime, not a glacier. The water sources for the Boulder River come from rain and snowmelt in Ohanapecosh Park, so the Boulder River is also a clear river instead of a milky glacial flour-filled river.

Slide 15:

Further downstream, even more side streams join in to the Ohanapecosh. They are all fed by rain and snow, not from melting glaciers.

Slide 16:

The Ohanapecosh is often crystal clear.

Slide 17:

Occasionally, the Ohanapecosh River is muddy, especially when it has been raining hard. Sediment exposed nearby and on the riverbanks washes into the river and is carried downstream. But, unlike the glacial rivers, which are always milky, the Ohana is only cloudy sometimes. After the big rains end, the sediment washes downstream and the river clears up again.

Slide 18:

Here is a picture of the Ohana running high during spring melt. This is the bridge on the way to the Grove of the Patriarchs.

Slide 19:

Occasionally, the rivers in the park flood catastrophically, including the Ohanapecosh! The November 2006 floods resulted in damage throughout the park, even within this very campground! During the 2006 storm, 18 inches of rain fell in 36 hours. The park had to shut down for over 6 months.

Slide 20:

153,000 hours of volunteerism over two years restored most of our trails, helped run our facilities, and increased visitor services beyond what the park could pay for.

Slide 21:

This is the Nisqually River at Longmire, on the west side of the park. The picture on the left was the day before the big rains started. The picture on the right was taken during the flooding.

Slide 22:

The Grove of the Patriarchs was flooded. Here is a picture of the bridge to the Grove of the Patriarchs.

In some places on the island, a 3-foot thick mud layer was deposited. The woman is standing on the mud layer, reading one of the signs that was almost completely buried by the flood. The boardwalk and bridge had to be rebuilt.

Slide 23:

Parts of the Ohanapecosh Campground were affected by flooding and landslides.

This log jam was just downstream of the campground. Note the picnic table for scale!

Slide 24:

A large landslide came down and destroyed part of the campground. Here's a person for scale!

Slide 25:

Here you can see part of the damage in C loop. The bank washed away, and campsites disappeared. The river bank used to extend further, but was undercut during the flooding.

Slide 26:

Major damage occurred along most river drainages in the park. We are here at the yellow star. One thing to notice from this map is that there are very few rivers from Mount Rainier that drain to the south

to the Columbia. Only the Cowlitz River and its tributary the Ohanapecosh flow to the Columbia. All the other rivers in the park flow north and empty into Puget Sound.

Slide 27:

So our little Ohana River travels downstream and becomes part of the mighty Columbia. Many communities are located along this river. As population growth continues in the Pacific Northwest, clean water will be in higher demand.

Slide 28:

How can we gauge the health of streams and rivers?

Macroinvertebrates are one group of animals that live in the rivers. Since they spend most of their life in the water, they are good indicators of how clean or polluted the water is.

Based on the communities that exist in the Ohanapecosh River, we can determine that the river is healthy. The species that live in the river tend to not tolerate pollution well, so we know that here in the park at least, the river is not very polluted.

Slide 29:

Mt. Rainier is home to many amphibians, and you can find several of these at lower elevations, including around the Ohanapecosh. Park biologists track species distributions to help monitor ecologic health. Here are some pictures:

Slide 30:

This is the Long-toed Salamander. Keep your eye out for these critters along the trails in the lower forests, including the Silver Falls and Grove of the Patriarchs Trail!

Slide 31:

And the Pacific Giant Salamander.

Slide 32:

This is an ensatina.

Slide 33:

Here's a western red-backed Salamander.

Slide 34:

We have frogs – like the Pacific Treefrog.

Slide 35:

And the Cascade Frog.

Slide 36:

And even toads, like the western toad seen here!

Slide 37:

Another way we know the Ohanapecosh is a healthy river system are its log jams. While some events that form log jams can be rather destructive, in the long run, the jams help control even worse damage. Rivers form log jams naturally, and they help prevent erosion from the stream banks. Engineers and geologists at Mount Rainier have built some artificial log jams along rivers in the park to try to curtail erosion in sensitive areas along roadways. They model the artificial log jams on natural ones like this.

Slide 38:

Here, one of the side channels of the river is actually higher than the road. A levee has been built to try to protect the road.

Slide 39:

In the forest nearby, engineers built a log jam on a flood channel of the river to try to cut down on the erosive action of the water during floods.

You can see the cut edges of the logs – this is a human-made log jam but its design was based on natural ones like those in the Ohana.

Slide 40:

At Ohanapecosh, it is all about the water! This clear, healthy river and the nearby water features have encouraged tourism of the Ohanapecosh area. All the other major campgrounds in the park focus on mountain views. Here at Ohana, you can't even see Mount Rainier!

But this place is special for its water and its trees. The beautiful river and nearby hot springs have brought families here for decades. Just outside the modern campground are the Ohanapecosh Hot Springs.

Slide 41:

The Ohanapecosh Hot Springs form as water from rain or snow works its way through cracks in the rocks down deep into the earth. Everywhere in the world, as you get deeper in the earth, towards the core, it is hotter. The water heats up. If it goes deep enough and rises fast enough, it can emerge as a hot spring.

Slide 42:

A resort was operated from the 1920's until 1963. At one point, there were cabins, a hotel, and bathing facilities. In the 1960's, the park began returning the hot springs to their natural state. This is the Ohanapecosh Lodge, built in 1925 before the Ohanapecosh area was added to the park in 1931. The lodge was removed along with the other resort buildings in the 1960's.

Slide 43:

Today, when you walk the nature trail, you can see the hot springs but they are no longer available for soaking.

Slide 44:

Now that you've learned about the Ohanapecosh and other rivers in the park, I would encourage you to go for a hike and get to know the rivers for yourself!

Slide 45:

Close to the campground, I recommend two hikes. This is the visitor center *(brown house).*

The first one is the Grove of the Patriarchs. You can drive up to the Steven's Canyon Entrance and park in the parking area just past the entrance. The 1.2 mile round trip walk will lead you across a suspension bridge over the Ohanapecosh River to an island with trees as old as 1000 years.

The second hike leaves from B loop of the campground. In this 2.5 mile loop, you will hike up to Silver Falls, a beautiful waterfall on the Ohanapecosh River.

Those are some nearby hikes, but…

Slide 46:

Who's ready for a change and wants to go explore other areas of Mount Rainier National Park?

To see some of those milky glacial rivers we were learning about, check out some other areas of the park!

You can drive along the Nisqually River between the Cougar Rock Campground and Longmire on the west side of the park. Get out for a hike at Paradise to see the glaciers up close!

To see the mighty Mowich River, drive to Mowich Lake and hike part of the Wonderland Trail.

To see the destructive Carbon River, you can head to the northwest corner of the park to see the Carbon River.

On this side of the park, you can explore the spectacular White River near Sunrise.

Slide 47:

At Paradise, walk up the Skyline trail to awesome vistas of the Nisqually Glacier. At the Nisqually Vista, you can look down on the snout of the glacier and see where the river starts!

Slide 48:

From Sunrise, you can walk two-tenths of a mile to the Emmons Vista where you can see the White River and its source. The White River is fed by the Emmons Glacier, the largest glacier in the lower 48 states!

From the White River Campground, you can walk a few hundred feet down to the White River and see how different it is from the Ohanapecosh.

If you want a longer hike with great mountain and river views, continue up the Glacier Basin Trail.

Most of us get out in the park on our feet in the summertime, but before we finish here tonight, I wanted to share a few less common ways of enjoying the Ohanapecosh!

Slide 49:

The Ohana is well known to kayakers in the region. Most people start just outside of the park and ride the river down towards La Wis Wis Campground. Do we have any kayakers in the audience?

Slide 50:

Another less common way of enjoying the river is to snowshoe or ski in when the park is closed for the winter.

Slide 51:

This is Silver Falls in the snow!

Whatever time of year you are here and wherever you travel at Mount Rainier, I wish you safe travels exploring the Ohanapecosh River and its neighbors in the park!

OUTLINE OF POWERPOINT PRESENTATION

Introduction: Who has seen the Ohanapecosh River that this campground is named after? Tonight we will explore the Ohanapecosh and its special place in Mount Rainier National Park.

Part 1: Native Use

- The name "Ohanapecosh" is thought to be derived from the word "Awxanapayk-ash", which means "standing on the edge".
- The local Taidnapam (Upper Cowlitz) people used this area for fishing.
- They also collected a variety of local plants (sword fern, cedar, berries).
- In the area of the La Wis Wis Campground, between here and Packwood, an archeological site dating to approximately 1630 was excavated in 1997.
- As a reminder – if you find any artifact, it is a crime to disturb or take the item. Please report the item description and location to park staff. Artifacts provide more information to scientists when they are in place, do your part to protect the park's history.

Transition: The Ohanapecosh is special here at Rainier because it is so clear.

Part 2: Hydrology/River System

- Many of the big rivers here at Mount Rainier are milky-colored. Has anyone been to the White River on the way to Sunrise? These rivers are milky because they are filled with glacial sediment. As glaciers flow slowly down the mountain, they pick up rocks. These rocks grind on each other, pulverizing the rocks into tiny pieces called glacial flour. The rivers fed by these grinding glaciers are full of this sediment.
- A commonly held assumption about the Ohanapecosh River is that its primary water source is the Ohanapecosh Glacier. This is partly true, but there is more to the story of this river!
- Two streams come together to form the main Ohanapecosh River. The smaller stream runs through the Indian Bar backcountry site and drains the Ohanapecosh Ice field. The stream is called the Ohanapecosh.
    - The Ohanapecosh "Glacier" is not a very active glacier. It is stagnant, so there is not much grinding of rock happening – so the stream running through Indian Bar is rather clear.
- The larger tributary is called the Boulder River. The Boulder River flows into the Ohanapecosh below Indian Bar.
    - The water sources for the Boulder River are snowmelt from Ohanapecosh Park and groundwater, so the Boulder River is also a clear river instead of a milky glacial flour-filled river.
- Sometimes the Ohanapecosh is cloudy – rainfall and sediment
- Occasionally, the Ohanapecosh floods and causes damage within the park, even within this very campground!
    - The November 2006 floods resulted in damage throughout the park.
    - The Grove of the Patriarchs was flooded, and a thick mud layer was deposited.

    - Parks of the Ohanapecosh Campground were affected by flooding and landslides.

Transition: The rocks and clear water of the Ohanapecosh provide critical habitat for many species and are important for people downriver.

Part 3: Ecology

- The Ohanapecosh is a tributary to the Cowlitz River, which then flows into the Columbia, providing water to communities downstream. As population continues to rise in the Pacific Northwest, healthy streams will be in high demand.
- Macroinvertebrates are one group of animals that live in the river.
    - Based on the communities that exist in the Ohanapecosh River, we can determine that the river is healthy. The species that live in the river tend to not tolerate pollution well, so we know that here in the park at least, the river is not very polluted.
- Amphibians of the area

Transition: We also know the river is healthy because of its log jams.

Part 4: Ohanapecosh and People Today

- Log jams indicative of healthy river – prevent erosion
    - Engineers copy the design
- Hot springs at Ohana: historic use, modern return to natural system
- Describe some river hikes: Silver Falls, Grove of the Patriarchs, White River, etc.
- Compare and contrast with other places in the park and encourage hikes there
- Kayaking and winter use

Conclusion: Whatever time of year you are here and wherever you travel at Mount Rainier, I wish you safe travels exploring the Ohanapecosh River and its neighbors in the park!

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